

# WSA Scientific Areas Preliminary Assignments

| Areas of Focus                                     | Potential Reviewers                          |
|--|--|
| <b>Tobacco</b>                                     |  |
| Biotechnology, GMO                                 | Romer, Gebel, Koller, Patskan, Zhang         |
| Cadmium  | Hausmann, Stabbert, Reif                     |
| Radioactivity                                      | Reininghaus, Schaffernicht                   |
| Crop protection agents                             | Werley, Carmines, Reif, Koller               |
| Mycotoxins   | Koller                                       |
| Aflatoxin  | Koller                                       |
| Polonium   | Kinser, Sanders                              |
| Breeding technologies for TNSA minimization        | Koller, Tricker                              |
| Processing technologies for TSNA minimization      | Koller, Tricker, Leyden                      |
| Harmonization of MRL's for agrochemicals           | Reif, Koller                                 |
| Curing/handling                                    | Koller, Patskan                              |
| <b>Tobacco Smoke</b> (including ETS)               |  |
| <b>Health endpoints</b>                            |  |
| <b>Cancer</b>                                      |  |
| - Mechanisms of lung cancer                        | Hausmann, Schlage, Tricker, Carchman         |
| - Mechanisms of arteriosclerosis                   | von Holt                                     |
| <b>Cardiovascular effect</b>                       |  |
| - Stroke   | von Holt                                     |
| - Buerger's disease                                |  |
| - Raynaud's disease                                |  |
| <b>Respiratory effects</b>                         |  |
| - Asthma   | von Holt, Dempsey, Davies                    |
| - Endotoxins and chronic bronchitis                | von Holt, Koller                             |
| - SIDS   | Dempsey, Sanders                             |
| * ETS Exposure                                     | Dempsey, Sanders                             |
| * Maternal smoking                                 | Dempsey, Sanders                             |
| <b>Development and reproductive effects</b>        | Dempsey                                      |
| <b>Immunological effects</b>                       | Hausmann, Friedrichs, Davies                 |
| <b>Effects of low tar products</b>                 | Walk, Sanders, Carchman                      |
| <b>Cell cycle regulation genes (e.g. P53, P16)</b> | Schlage, Gebel, Tricker                      |
| <b>Mechanism</b>                                   |  |
| - Oxidative stress                                 | Muller, Schlage, Hausmann                    |
| - Genetic susceptibility                           | Hausmann, Tricker                            |
| - Endocrine disruptors                             | Koller                                       |
| - AH-receptors                                     | Hausmann, Tricker                            |
| - Adducts  | Schepers, Stabbert, Tricker, Kinser          |
| - Biomarkers                                       | Schepers, Davies, Tricker, Leyden            |
| <b>Combination effects</b>                         |  |
| - Asbestos and smoking                             | Hausmann, Teredesai, Carchman, Sanders, Walk |
| - Radon and smoking                                | Hausmann, Schaffernicht                      |
| - Alcohol and smoking                              | von Holt                                     |
| <b>Other effects</b>                               |  |
| - Digestive  |  |
| - Skin   |  |
| - Musculoskeletal                                  |  |
| - Ocular   | Sanders, Walk                                |

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| <b>Smoke constituents</b>               |                                |
| General Smoke Delivery Parameters       |                                |
| - total particulate matter              |                                |
| - water                                 |                                |
| - nicotine                              |                                |
| * "carcinogenicity"                     | Romer                          |
| * bioavailability                       | Hausmann, Schepers, Gullotta   |
| - tar                                   |                                |
| - carbon monoxide                       | Rustemeier                     |
| <b>Aliphatic Hydrocarbons</b>           |                                |
| - 1,3-butadiene                         | Hausmann, Walk, Elves, Tricker |
| * health effects                        | Hausmann                       |
| * reduction                             | Patskan                        |
| - isoprene                              | Rustemeier                     |
| <b>Aldehydes</b>                        | Rustemeier, Hausmann           |
| - acetaldehyde                          | Rustemeier, Hausmann, Seeman   |
| - acrolein                              |                                |
| - formaldehyde                          | Rustemeier                     |
| - propionaldehyde                       |                                |
| <b>Monocyclic Aromatic Hydrocarbons</b> |                                |
| - benzene                               | Rustemeier                     |
| - styrene                               |                                |
| - toluene                               |                                |
| <b>Polycyclic Aromatic Hydrocarbons</b> | Rustemeier                     |
| - benz(a)anthracene                     |                                |
| - benzo(b)fluoranthene                  |                                |
| - benzo(i)fluoranthene                  |                                |
| - benzo(k)fluoranthene                  |                                |
| - benzo(a)pyrene                        | Rustemeier, Schepers           |
| - dibenz(a,h)anthracene                 |                                |
| - dibenz(a,e)pyrene                     |                                |
| - dibenz(a,h)pyrene                     |                                |
| - dibenz(a,i)pyrene                     |                                |
| - dibenz(a,l)pyrene                     |                                |
| - indeno(1,2,3-cd)pyrene                |                                |
| - 5-methylchrysene                      |                                |
| <b>Phenols</b>                          |                                |
| - catechol                              |                                |
| - phenol                                |                                |
| <b>Aromatic Amines</b>                  |                                |
| - 4-aminobiphenyl                       |                                |
| - o-anisidine                           |                                |

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|------------------------------|------------------------------|
| - 2-naphthylamine            |                              |
| - o-toluidine                |                              |
| N-Nitrosamines               | Rustemeier, Tricker          |
| - nitrosodibutylamine        |                              |
| - nitrosodiethanolamine      |                              |
| - nitrosodiethylamine        |                              |
| - nitrosodimethylamine       |                              |
| - nitrosodipropylamine       |                              |
| - nitrosomethylethylamine    |                              |
| - nitrosomornicotine         |                              |
| - nitrosopiperidine          |                              |
| - nitrosopyrrolidine         |                              |
| - NNK                        |                              |
| - carcinogenicity            | Hausmann                     |
| - reduction                  | Patskan                      |
| Polycyclic Aza-arenes        |                              |
| - dibenz(a,h)acridine        |                              |
| - dibenz(a,i)acridine        |                              |
| Aliphatic Nitrogen Compounds |                              |
| - acetamide                  |                              |
| - acrylonitrile              |                              |
| - 1,1-dimethylhydrazine      |                              |
| - hydrogen cyanide           |                              |
| - 2-nitropropane             |                              |
| - urethane                   |                              |
| Halogen Compounds            |                              |
| - vinyl chloride             |                              |
| Metals                       | Stabbert                     |
| - arsenic                    |                              |
| - cadmium                    |                              |
| - chromium                   |                              |
| - nickel                     |                              |
| - lead                       |                              |
| Inorganic Compounds          |                              |
| - hydrazine                  |                              |
| - nitrogen oxides            | Rustemeier                   |
| Radicals in smoke            | Muller, Hausmann             |
| Radioactivity in smoke       | Schaffernicht                |
| Dioxin                       |                              |
| Ammonia                      | Rustemeier, Hausmann, Seeman |
| ETS                          |                              |

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|---|---|
| Exhaled smoke   |   |
| ETS constituent: markers, apportionment, and modeling                                       | Rustemeier, Haussmann, Reif               |
| Ventilation technology  | Lipowicz, Schorp, Hirnikel, Lau           |
| Air-quality guidelines  | Schorp, Lau                               |
| Computational fluid dynamics  | Lipowicz, Hirnikel, Schorp                |
| ETS Exposure assessment   | Rustemeier, Gerstenberg                   |
| - Hospitals, workplaces and homes   | Lipowicz, Schorp, Lau, Zhang              |
| - Children  |   |
| ETS and breast cancer   | von Holt, Sanders                         |
| ETS and adducts   | von Holt, Tricker, Sanders                |
| ETS and children's issues   | Dempsey, Sanders                          |
|   |   |
| <b>Smoking Behavior</b>   |   |
|   |   |
| Compensation  | Haussmann, Gullotta, Takada               |
| Addiction   | Gullotta, Takada                          |
| - Mechanism of addiction  | Gullotta, Takada, Tricker, Leyden         |
| Nicotine metabolism   | Schepers, Seeman                          |
| Nicotine bioavailability  | Schepers, Leyden, Davies                  |
| Neurological disorders  | Carchman, Davies, Takada, Gullotta        |
| - Neurodegenerative disorders   |   |
| - Alzheimer's disease   | von Holt, Davies, Patskan                 |
| - Tourette's Syndrome   |   |
| - Parkinson's Disease   | von Holt                                  |
| Cognition, learning and memory  | Gullotta, Davies, Takada                  |
| Clinical depression and schizophrenia   | Gullotta, Carchman                        |
| - Stress, mood and depression   | Gullotta, Carchman, Davies                |
| Neurotransmitters and nicotine receptors  | Gullotta, Seeman, Sanders, Davies, Takada |
| Combined effect of ethanol and nicotine (may also be considered as an "emerging issue")     | Gullotta, Takada                          |
|   |   |
| <b>Product Evaluation</b>   |   |
|   |   |
| Fire safe products  |   |
| Ingredients   | Carmines                                  |
| - Cocoa   | Romer, Carmines                           |
| Selective filtration  | Koller, Patskan                           |
| Tobacco burn characteristics (need clarification, Nixon if parameter study is part of this) |   |
| Low sidestream products   | Patskan                                   |
| Carcinogens (needs clarification)   |   |
| Low tar products  | Patskan, Koller                           |
| Vinyl acetate in smoke  | Rustemeier, Carmines, McKinney            |
| Propylene oxide in smoke  | Rustemeier, Carmines, McKinney            |
| Documented approval of all DM coded materials   | Carmines, Patskan                         |
| UK ingredient issues  | Carmines, Dempsey                         |
| Implementation of ingredient testing program  | Reininghaus, Carmines, Nixon              |
| Approval of WW packaging materials  | Carmines                                  |
| Evaluation of reprotox as an endpoint in PI evaluation                                      | Carmines, Patskan                         |

**WSA Scientific Areas  
Preliminary Assignments**

| <b>Areas of Focus</b>   | <b>Potential Reviewers</b>                         |
|---|--|
| Implementation of an industry testing program                                     | Reininghaus, Carmines, Patskan                     |
| Implementation of an independent scientific review board of ingredients           | Carmines, Solana                                   |
| Approval of WW flavors based on product rather than pre-mix                       | Nixon, Carmines                                    |
| Development of data packages to support use of individual ingredients             | Carmines, McKinney                                 |
| Decide on most appropriate unit(s) of comparison for various assays               | Reininghaus, Nixon, Patskan                        |
| Ingredient transfer study   | Carmines, Rustemeier                               |
| Menthol   | von Holt, Carmines, Werley                         |
| - Design study to test menthol  | Romer, Carmines, Werley                            |
| Inhalation study to evaluate sidestream adhesives                                 | Terpstra, Carmines, McKinney                       |
| EU MSDSs; ecotox test results   | Romer, McKinney, Carmines                          |
| Evaluation of defoamers   | Romer, Carmines, Werley                            |
| Implement testing program at IITRI  | Romer, Carmines, Nixon                             |
| Evaluation of plug wraps  | Romer, Carmines, Patskan, Smith                    |
| Evaluation of flavors   | Romer, Carmines, Patskan, Fournier                 |
| Evaluation of sideseam adhesives  | Romer, Carmines, Patskan, McKinney                 |
| SG dust studies   | Terpstra, Werley, Patskan                          |
| Initiate and complete evaluation of ink drawdowns for decorative and tipping inks | Romer, Carmines, Gaines                            |
| Current US ingredients to current standard  | Carmines, Patskan                                  |
| Resolve issues with pigments  | Carmines, Gaines                                   |
| Pubs/presentation - banded paper  | Romer, Patskan, Koller                             |
| Symposium   | Solana, Patskan                                    |
| PI Guidelines   | Reininghaus, Carmines, Fox                         |
| Chemistry list weighting approach   | Haussmann, Patskan                                 |
| Cobalt risk assessment  | von Holt, Werley, Patskan                          |
| Protein transfer study  | von Holt, Koller, Patskan                          |
| Latex allergy   | Werley, Patskan                                    |
| Steam chemicals   | Werley, Patskan                                    |
| Lubricants  | Werley, Patskan                                    |
| Polymer pyrolysis study   | Werley, Patskan                                    |
| Processing aides (documented evaluation)  | Werley, Patskan                                    |
| MES analyticals   | Werley, Patskan                                    |
| Reclassify N-rated materials  | Werley, Patskan                                    |
| Direct contact hoses  | Werley, Patskan                                    |
| Catalog current tobacco processes   | Koller, Patskan                                    |
| GET guidelines  | Koller, Patskan                                    |
| CO: Tar criteria  | Patskan  |
| Pipe, RYO, cigarillo and cigar product testing strategy                           | Patskan, Solana                                    |
| QSR   | Fox, Carmines                                      |
| Redox potential of smoke  | Rustemeier, Haussmann, Patskan                     |
| <b>Methodology</b>  |  |
| Cigarette design modeling   | Nixon, Koller                                      |
| In vitro methods  | Romer, Tewes, Nixon, Reininghaus, Walk, Koller     |
| In vivo methods   | Haussmann, Terpstra, Nixon, Terpstra, Walk, Koller |
| Epidemiology  | von Holt, Nelson, Dempsey, Sanders                 |

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|----------------|---------------------|
|                |                     |